

RATE ADAPTATION AND PARAMETER OPTIMIZATION FOR
MULTI-BAND SINGLE CARRIER TRANSMISSION

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ABSTRACT OF THE DISCLOSURE

A method for enhancing the bit rate and/or margin at which quadrature amplitude modulation (QAM) communication is performed over multiple bands of a communication link includes the steps of varying a spectral allocation and constellation size with which communication is performed, so as to define a combination of spectral allocation and constellation size at which the bit rate and/or margin are enhanced. The rate adaptation method identifies the spectral allocation and constellation size to use on each of the multiple bands that results in a total bit rate greater than or equal to the target bit rate, subject to specified constraints on SNR margin and/or BER limits. If more than one parameter set has this property, the rate adaptation method may for example select the spectral allocation and constellation size combination that maximizes the minimum SNR margin across the multiple bands.

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